
REMARKS

Applicants thank the Examiner for the courtesies extended to Applicants' representative during the telephonic interview held on February 23, 2006. The substantive points of discussion included the addition of the features of dependent claim 9 into independent claim 1 and the synergistic effects that result from combining the perovskite-type composite oxide containing the noble metal into the catalyst defined in claim 1.

Claims 1-8 and 10-22 and 24 are presently pending in this application. Claims 9 and 23 have been canceled without prejudice or disclaimer, and Claim 24 added. Reconsideration and allowance of all the rejected claims are respectfully requested in view of the following remarks.

The Examiner has objected to claim 8 due to informalities. Claim 8 has been amended herein to correct for any informalities noted by the Examiner. Thus, the Examiner is requested to withdraw this objection.

Further, Claim 23 has been objected to under 37 CFR §1.75 as being a substantial duplicate of Claim 1. Claim 23 has been canceled without prejudice or disclaimer, thereby rendering this rejection moot.

The Examiner has rejected claims 5 and 16 under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 5 and 16 have been amended to correct for any perceived indefiniteness. Thus, the Examiner is requested to withdraw this rejection.

Further, Claim 5 has been separated herein into two claims, amended Claim 5 and new Claim 24, to more clearly delineate the portions of the claim that are dependent from Claims 3 and 4, respectively. This separation is not believed to narrow the claims, it merely separates one combined claim into two separate claims.

Claims 1-3, 5, 7, 9-12, and 23, have been rejected under 35 U.S.C. §103 as allegedly being unpatentable over Abe et al. (USP 5,439,865) taken together with Kaneko et al. (USP 6,800,388) or Monceaux et al. (USP 5,622,680). For at least the following reasons, this rejection is respectfully traversed.

The Action states as follows:

Abe discloses an exhaust gas catalyst, comprising: a heat-resistant inorganic carrier; a first catalyst layer loaded on said carrier; said first catalyst layer comprising a catalyst composition containing at least one noble metal selected from the group consisting of Pt and Pd, and active alumina, etc.; and a second catalyst layer loaded on said first catalyst layer, said second catalyst layer comprising a second catalyst composition containing active alumina and Rh loaded thereon, etc. (see col. 20, claim 11). Abe further discloses that the active alumina preferably contains a θ -phase (see col. 6, ln 25-61).

Abe discloses the claimed catalyst, except for the perovskite-type composite oxide.

However, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have incorporated by adding such known perovskite type composite oxide into the catalyst of Abe in order to achieve an improved catalyst, such as having high activity/selectivity which is capable of maintaining its high selectivity with the good stability even in the high temperature and oxygen sufficient atmosphere as taught by Kaneko and Monceaux. Specifically, Kaneko and Monceaux disclose the claimed perovskite composite oxide as follows.

Kaneko discloses a catalyst composition which comprises: a perovskite composite oxide having the formula ABO_3 and the formula $A'_{1-x}A''_xB'_{1-y}B''_yO_3$ wherein A' is La, Ce or both, A' is at least one element selected from the group consisting of La, Ca, Sm, Ce, Sr, Ba and Pr, B' is at least one element selected from the group consisting of Co, Fe, Mn, and Gd, and B'' is at least one element of noble metals, etc. (see col. 18, claim 1). See also Table 3 in col. 15 & 16.

Monceaux discloses a catalyst containing an active phase of the perovskite-type structure having the general formula: $L_xL'_{1-x}M_yM'_z\Phi_{1-y-z}O_3$, wherein L is an element selected from the lanthanides and the rare earth metals, L' is an element selected from Sr, Ca, Ba, Ce, K, Bi, Rb and Na, M is a transition metal selected from Cr, Mn, Fe, Co, Ni and Cu, M' is at least one metal selected from Pt, Ru, Pd, Rh, etc. (see col. 1, ln 40-57). See also Table II in col. 4, catalyst 9. The catalyst is deposited on a support and wherein the support is made of refractory material or metal (see col. 6, claims 4 & 5)."

Applicants respectfully submit that there is no motivation provided in the references to pick and choose features of the references that are directed to solving different problems and to combine them.

Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness by providing a clear and objective motivation to combine the teachings of the references. The Examiner's assertion that it would have allegedly been obvious "*to have incorporated by adding such known perovskite type composite oxide into the catalyst of Abe in order to achieve an improved catalyst*" does not indicate that at the time of the invention one of ordinary skill in the art would have been motivated to make such an incorporation or to expect an improved catalyst by making such an incorporation.

As the Examiner knows, simply because the references relied upon teach that aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000) (Court reversed obviousness rejection involving technologically simple concept because there was no finding as to the principle or specific understanding within the knowledge of a skilled artisan that would have motivated the skilled artisan to make the claimed invention); *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999) (The level of skill in the art cannot be relied upon to provide the suggestion to combine references.)."

Applicants submit that if one of ordinary skill in the art were to combine the teachings of Abe with Kaneko or Monceaux, he would only reasonably expect a weighted average of the compositions of Abe and Kaneko or Monceaux and necessarily would expect that the

composition would be an inferior catalyst to Abe or either Kaneko or Monceaux. Accordingly, there would not have been any motivation to combine these references.

When present, for example in a chemical case, synergism may point toward nonobviousness..." *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1540, 218 USPQ 871, 880 (Fed. Cir. 1983); MPEP 2141. The present combination has a synergistic effect that is neither taught nor suggested by the cited references. As stated above, one of ordinary skill in the art would understand that by combining materials disclosed in two or more patents the predicted result would be a blending or averaging of the properties of the materials. The present invention does not result in an averaging or blending of the properties that one typically gets when blending materials. Rather, as stated in the present application paragraphs [0195] through [0197] on page 12 of the published application US 2005/0266986, the combination enhances the properties of the perovskite-type composite oxides. This is a synergistic effect in a chemical case that points to nonobviousness.

Below are copied paragraphs [0195] through [0197] of the present application which emphatically state the synergistic effect which is supported by the data provided between examples and comparative examples throughout the application. See Table 1 page 52-53, Table 3 page 53-54, Table 4 page 55, Table 5 page 56, Table 6 page 56-57, Table 7 page 58.

[0195] The exhaust gas purifying catalyst of the present invention thus obtained can allow a noble metal to be stably contained in a perovskite-type composite oxide and, in addition, **remarkably increase** the thermostability of the perovskite-type composite oxide by the action of at least one of theta-alumina and alpha-alumina.

[0196] In each perovskite-type composite oxide, the noble metal is finely and highly dispersed thereby to maintain its high catalytic activity even in long-term use in an atmosphere of high temperature. This is because of the self-regenerative function in which the noble metal repetitively undergoes solid-solution under an oxidative atmosphere and deposition under a reducing atmosphere with respect to the perovskite structure. This self-regenerative function also enables the resulting catalyst to achieve

satisfactory catalytic activity even if the amount of the noble metal is significantly reduced.

[0197] The perovskite-type composite oxide containing a noble metal **exhibits increased thermostability by the action of at least one of theta-alumina and alpha-alumina. This prevents the perovskite-type composite oxide from grain growth and a decreased specific surface area in an atmosphere of high temperature of, for example, 900°C. to 1000°C., or further exceeding 1050°C. (emphasis added)**

With respect to Kaneko, there is no motivation in the reference for one to pick and choose particular elements to achieve the particular purpose of the present invention (which is not the objective of Kaneko). In particular, one would not be motivated to pick and choose disclosure from Kaneko to incorporate into other disclosure to try to arrive at the present invention, at least because there is no suggestion in Kaneko of trying to provide an exhaust gas purifying catalyst that allows a noble metal to be stably contained in a perovskite-type composite oxide and, in addition, **increases** the thermostability of the perovskite-type composite oxide by the action of at least one of theta-alumina and alpha-alumina. The goal of Kaneko is to provide a fuel cell catalyst.

Similarly, there is no motivation in Monceaux to pick and choose the elements of the claimed invention, which is directed to solving a different problem than Monceaux. The object of Monceaux is to minimize the amount of noble metals in the complex. Accordingly, one would not be motivated by Monceaux to modify its teachings to achieve the goals of the present invention. Accordingly, for at least this reason, Monceaux does not render the present invention obvious.

It appears that improper hindsight is being used to justify a combination that is not suggested by the references. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of Claims 1-3, 5, 7, 9-12 and 23, as the claimed invention is not obvious.

Claims 4, 6, 8, and 13-22 stand rejected under 35 U.S.C. §103 as allegedly being unpatentable over Abe et al. (USP 5,439,865) taken together with Kaneko et al. (USP 6,800,388) or Monceaux et al. (USP 5,622,680), and further in view of Tan et al. (USP 6,620,762). For at least the following reasons, this rejection is also respectfully traversed.

The Action states as follows:

"Abe discloses the claimed catalyst except for the thermostable oxide.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have incorporated such known thermostable oxide into the catalyst of Abe in order to achieve a stable catalyst because it is known and taught by Tan (see Tan at col. 15-col. 16, claim 4). See also Tan at col. 15- col. 16, claim 1-3 & 5-9.

Claims 4, 6, 8, and 13-22 depend directly or indirectly from independent claim 1.

Thus, Applicants submit that these claims are unobvious over the cited references for at least the reasons indicated above. Tan does not cure the deficiencies of Abe, Kaneko and Monceaux. Applicants again respectfully submit that the Action does not provide a clear and objective motivation to combine the disclosure of these references. The Examiner's assertion that it would have allegedly been obvious *"to have incorporated such known thermostable oxide into the catalyst of Abe in order to achieve a stable catalyst because it is known and taught by Tan"* does not indicate that at the time of the invention one of ordinary skill in the art would expect an improved catalyst by doing so.

The Examiner does not point to any motivation to make any combination of the references. As explained above, one of ordinary skill in the art could only reasonably expect a weighted average of the compositions of Abe and Kaneko or Monceaux, and Tan, and necessarily would expect that the composition would be an inferior catalyst to Abe or Tan or either Kaneko or Monceaux. Hence, the improved catalyst could not have been obvious at the


time of the invention and there would not have been any motivation to combine these references. Again the synergism that was discovered by making the combination supports nonobviousness.

In view of Applicants comments, Applicants respectfully request that the Examiner withdraw the rejection to Claims 4, 6, 8, & 13-22 as the invention was not obvious by the combination of Abe with Kaneko or Monceux in further view of Tan.

If the Examiner believes that there is any issue which could be resolved by a telephone or personal interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee for such an extension is to be charged to Deposit Account No. 50-0951.

Respectfully submitted,



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